

REMARKS

Reconsideration and withdrawal of the rejections set forth in the Office Action dated June 15, 2006, is respectfully requested. Claims 1-48 and 50-78 remain pending in this application, with claims 1-43 and 62-78 withdrawn from consideration.

Rejection under 35 USC §103(a)

In the outstanding Office Action, claims 44-48 and 50-61 were rejected under 35 U.S.C. §103(a) over *Kemeny* (US 6,515,346), taken in view of *Kosaki et al* (US 2001/0028113, hereinafter *Kosaki*). This rejection is respectfully traversed.

Response

The present invention as defined in the independent claims 44, 45 and 59-61 relates to an integrated semiconductor device and to an electronic circuit comprising a plurality (at least two) such semiconductor devices, respectively. The integrated semiconductor device includes a semiconductor element having a perforation 14 extending along a central axis thereof. The perforation defines an inner surface that carries electronic elements. The integrated semiconductor device also includes contact elements 20 connected to the inner surface of the semiconductor element. The contact elements 20 are arranged on a flat surface 18 of a butt-end of the semiconductor element. This surface 18 surrounds the opening formed by perforation 14.

These features are clearly set forth in the claims. For example, claim 44 defines:

"... providing a semiconductor element having a perforation ... defining a central channel ... processing an inner surface of said perforation via the central channel to form features of the semiconductor device ... on said inner surface; and providing contact elements on substantially flat surface of a butt-end of the semiconductor element, the contact elements being connected to said inner surface."

Claim 45 defines:

"... a semiconductor element having a perforation extending along a central axis ... said inner surface carrying electronic elements; and contact elements arranged on a substantially flat surface of a butt-end of the semiconductor element, the contact elements being connected to said inner surface."

Contrary to the present application, *Kemeny* does not teach contact elements arranged on a butt-end of the semiconductor element. The contact elements used by *Kemeny* are the bumps 15 or 61 as shown in Figs. 1, 5 or 61, which are arranged over the IC and separated by insulating layer (see, for example, col. 4, lines 5-8 and col. 6, lines 36-38).

In turn, *Kosaki* teaches away from the present invention, because the electrode pads 2 (which are used as contact elements as shown in Figs. 1a, 1b, 2, 3a, 3b, 5, 6a-16) are always arranged over a via hole 3, but not on a flat surface that surrounds the hole, as in the present invention.

In the present invention, the perforation extending along a central axis of the semiconductor device is not covered by any contact elements. There is no motivation in the documents cited by the Examiner which suggests that these references be combined. If the documents were to be combined in the manner proposed, the proposed combination would not be physically possible or operative, because if the perforation of the semiconductor elements will be covered by electrode pads, these elements could not be used for preparing an integrated circuit arranged such that the perforations in the elements are aligned along an axis of the stack thereby defining a common perforation channel extending along the stack. Thus, the Applicant submits that the combination of *Kemeny* and *Kosaki* proposed by the Examiner cannot provide the invention as recited in the independent claims.

Referring to the perforation extending along the central axis, the standard for obviousness is not one of technical skill; rather it is one of motivation to combine the references.

A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. § 103.

Obviousness is a question of law based on the following factual inquiries: 1) the scope and content of the prior art, 2) the differences between the prior art and the claims, 3) the level of ordinary skill in the art, and 4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). The person of ordinary skill in the art is presumed to know all of the prior art in the field of the inventor's endeavor and prior art solutions for a common problem even if outside that field. *In re Nilssen*, 851 F.2d 1401, 7 USPQ2d 1500 (Fed. Cir. 1988) (That view accords with the plethora of this Court's precedent). For the purpose of combining references, the references need not explicitly suggest combining teachings, much less specific references. *Id.* There must be some reason, suggestion or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination of references necessary to render a claim obvious. Such suggestion or motivation to combine prior art teachings can derive solely from the existence of the teaching, which one of ordinary skill in the art would be presumed to know, and the use of that teaching to solve the same or similar problem which it addresses. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992).

Motivation is Absent in the Prior Art

It is well established, there must be some reason, suggestion, or motivation found in the prior art combination whereby a person of ordinary skill in the field of the invention would make the combination; in this case, motivation to combine *Kemeny* and *Kosaki*. That knowledge

cannot come from Applicant's invention itself. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). Oetiker's invention was an improvement in a hose clamp. The references applied by the Examiner consisted of an earlier Oetiker patent relating to a hose clamp and the Lauro '400 patent, relating to a hook and eye fastener for use in garments. The Court concluded that the references were improperly combined. It stated:

It has not been shown that a person of ordinary skill, seeking to solve a problem of fastening a hose clamp, would reasonably be expected or motivated to look to fasteners for garments. The combination of elements from non-analogous sources, in a manner that reconstructs the applicant's invention only with the benefit of hindsight, is insufficient to present a *prima facie* case of obviousness. There must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge cannot come from the applicant's invention itself. *Diversitech Corp v. Century Steps, Inc.*, 850 F.2d 675, 678-79, 7 USPQ2d 1315, 1318 (Fed. Cir. 1988); *In re Geiger*, 815 F.2d 686, 687, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1147, 227 USPQ 543, 551 (Fed. Cir. 1985).

Applicant therefore submits that in the present case it has not been shown that a person of ordinary skill, seeking to construct the semiconductor device by use of semiconductor elements would reasonably be expected or motivated to determine that the arrangement accomplished by use of elements that surround a flat surface. This is neither shown nor suggested by a combination of *Kemeny* and *Kosaki*. The invention as claimed is unobvious with respect to the feature of:

"... inner surface of said perforation via the central channel to form features of the semiconductor device ... on said inner surface; and providing contact elements on substantially flat surface" (claim 44)

It is therefore submitted that independent claims 44, 45 and 59-61 recite novel and inventive subject matter which distinguishes over any possible combination of *Kemeny* and *Kosaki*.

The remaining dependent claims all relate to the device recited in Claim 45 or to the electronic circuit recited in claim 57, and are therefore deemed to be patentable over the cited prior art.

It is therefore respectfully submitted that the rejection under 35 USC § 103(a) should be withdrawn.

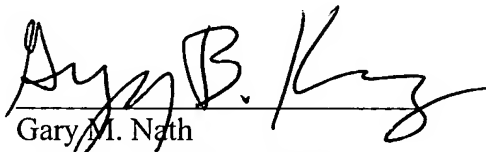
CONCLUSION

In light of the foregoing, Applicant submits that the application is in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicant respectfully requests that the Examiner call the undersigned.

Respectfully submitted,
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